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VACA VALLEY RADIO CLUB

VACAVILLE CALIFORNIA

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MAY 2003

License Class

There will be a license class and test session on Saturday, May 24 in Rio Vista. Contact Bob Hewitt, K6HEW if you wish to make a reservation for either the class or the test session. His phone number is 448-5665. His E-Mail is hewbob@cwnet.com.

And just in case you forgot, his handsome face and Station…

Bob's Credits this month are for the Class announcement, Doolittle Raiders, and MS walk articles… Thanks much editor

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Power Divider/Power Splitter

A two - way power splitter to match two 50 ohm antennas to a 50 ohm transmission line is a quarter wave section of coaxial line that has a 35 ohm impedance. When you parallel two 50 ohm antennas the resultant is 25 ohms. To match this to a 50 ohm transmission line the quarter wavelength matching section has to have an impedance that is the geometric mean of the two impedances to be matched (25 and 50 ohms). The geometric mean is the square root of the product of the two impedances (25 and 50 ohms) or 35.36 ohms. The dimensions of the coaxial section is calculated by Zo = 138 Log D/d if the quarter wavelength section is made of round material. If it is a round tube inside a square outer conductor the equation is Zo = 138 Log (1.08 D/d). When a 'power splitter' as described above is used the feed line to the antennas can be any length as long as they are equal in length.

There's no "space age" wizardry to power splitters or any of the other basic building blocks we use in Ham Radio or Electronics in general. BTW, coaxial adapters are for the most part lossless and that loss unmeasurable (at least with the equipment that most Hams can afford) until they are used above 500 MHz.

Yes, two 50 ohm antennas can be matched in this manner. But, the 75 ohm lengths need to be 3/4 and 1/4 wavelengths at the band of operation, with the "T" between them. Sure you can build your own, Remember though, with this arrangement, to reverse one of the feeds on the driven element on the two antennas involved. The 3/4, 1/4 arrangement is to allow sufficient coax to allow the antennas to be spaced properly to provide the gain of using a pair of antennas rather than just one. Just like a four - way splitter/combiner can be made out of a half wavelength of 50 ohm transmission line with a pair of coax connectors at each end and one in the middle of the half wavelength section. Olde Antenna Lab of Denver
Dr. D.A. Clingerman, Sc.D. (CEO)

MS Walk

It was a bright and sunny day on April 5 as members of the Vaca Valley Radio Club gathered at Suisun City Hall for the annual Multiple Sclerosis Walk. Mike, NI6V manned rest stop #1. Rob N7AGE manned rest stop #2. Bob, K6HEW stuck around the start/finish line as a "shadow for the event organizers. Clyde, WH6AB monitored the course from his car and did an excellent job as Net Control and SAG wagon. Fortunately, the event went very smoothly and everyone who started the walk finished under their own power.

The Suisun City Fire Dept. started a fire in the Barbeque Pit and all event participants (including communicators) were treated to barbequed chicken and hot dogs. This was in addition to the various kinds of pizza, fruit, bagels, cookies, soft drinks and other food stuffs that were available.

Doolittle Raiders

At dawn on April 18, 1942, a U.S. Navy task force was heading through rough Pacific seas toward Japan. One of the ships in the flotilla was the aircraft carrier Hornet with 16 AAF B-25s on deck. Plans called for the B-25s to take off from the carrier when within 450 to 650 miles of Japan, bomb selected targets at such locations as Yokohama and Tokyo, and then fly another 1,200 miles to friendly airfields on mainland China.

Unfortunately, an enemy patrol boat was sighted and, although it was sunk by U.S. gunfire, it was decided to launch the planes at once in case the patrol boat had been able to radio a warning to Japan. The 16 B-25s were launched while the task force was 800 miles from Japan rather than the desired 450 to 650 miles. They all reached the Japanese islands, dropped their bombs on oil stores, factory areas, and military installations, and then headed out across the East China Sea. However, night was approaching, the planes began running low on fuel, and the weather was rapidly becoming worse. The crews realized they could not reach the Chinese airfields and had the choice of either bailing out, ditching at sea, or crash-landing, although one plane was able to divert to Vladivostok where its crew was interned by the Russians.

When the news of the raid was released, American morale zoomed from the depths to which it had plunged following Japan's successes. It also caused the Japanese to transfer back to the home islands fighter units which could have been used against the Allies. In comparison to the B-29 attacks against Japan two years later, the Tokyo Raid was a token effort. It was, however, an example of brilliant tactics.

On April 17, 2003, a celebration and air show was held at the Nut Tree Airport in honor of the raid. Several thousand people visited the airport to see vintage aircraft and to meet with the surviving aviators

The following Vaca Valley Radio club members helped with the communications for the event. Clyde Hood, WH6AB; Rob Barrera, N7AGE; Ruff Gunn, K6DME; Bob Hewitt, K6HEW; Tom Christman, KE6MDM; Mike Vieira, W6MAV and Dave Warner, W6OLL

A Moving QTH, And A Tower…

RV life can bring its challenges in Amateur radio. One of which is maintaining a good sounding station while traveling in a 5th wheel. A simple vertical will not do for this avid amateur. As soon as I set up the 5th wheel, it's time to see how I can put up the tower. While living in Vacaville, Ca. hitting the repeater was easy. Pull out a hand held, program in the frequency and PL, and get a 5 by 9 "full quieting" signal. But relocating in an RV brings its challenges of distance, interference and neighbors.

My first move from Vacaville, Ca with the 5th wheel was to a project in San Francisco, next to Pacific Bell Ball Park. First thought was that a simple vertical antenna would make the 45 mile trip to the repeater. Well, you learn quick about a thing called RF interference in a big city. The solution was a 2 meter vertical beam. With the help of Bob, K6HEW and Jim, W6BUL we were able to get "permission" to erect a Rohn 25 tower up 30' with a 25' mast and attached an M2 2M9 vertical beam and prop pitch rotor. The VVRC repeater was now in reach! RF disappeared and a strong signal followed. For 4 months this seemed to be the charm, but as all good things change, it was time to move.

My next move was closer to Vaca, but presented different challenges. I found a trailer park in the Delta. Wow, I thought… what a great place to transmit from. Erecting the tower turned out to be the easiest part, neighbors and trees turned out to be an education. As Bob, K6HEW and I were standing the tower; the little nasty neighbor lady ran over and starts pitching a fit over the "beauty" of my tower to the park. Well… this time luck was on our side; she also did not get along with the neighbors! I was told by the other neighbors to put up the biggest, most offensive tower I could. As we all know any amateur tower can satisfy that request. On the other hand I learned one thing inherent to trailer parks… the dreaded roof top TV antenna. Even though we are not normally the cause of interference, we get blamed for it all. After sitting down with one angry neighbor complaining that I was messing up their TV, I gave them my phone number. A few days later my phone rang with the complaint that I was interfering with their favorite show. Knowing that my radio was not even on, I ran over and looked…

it turned out to be the neighbors microwave… another bullet dodged!

Well radio life was good in the Delta, so much so that the manager said my antenna was so large, that she was getting better TV reception! Here is also where I fell in love with 2 meter sideband and SWOT (Side Winders On Two), a good place to learn the benefits of SSB. But soon it was time to move again… this time Los Angeles. Oh well, I thought, my days of checking in with my Vacaville buddies on 2 meters would be over, so I thought.

During the initial months of traveling between Northern Cali and Sylmar, and the help of Larry, W6OMF, I discovered a linked repeater system along Interstate 5, IRLP and Condor. But there is still something exciting about making a simplex transmission. Still short of getting my General, 2 SSB would have to do. In looking for a trailer park, it came down to two choices… Malibu or Sylmar… As it turned out Sylmar had a better path through the grape vine (and a lower monthly cost). Using the lessons learned from Paul, KA6CHJ, that an antenna is only as good as its assembly, I tested the path with a push-up mast and the single M2 2 meter beam. But I just could not make

the 350 mile trip, even though my neighbors to the south around Long Beach, seem to have little difficulty making the SWOT check in (there must be a refraction effect over the mountains).

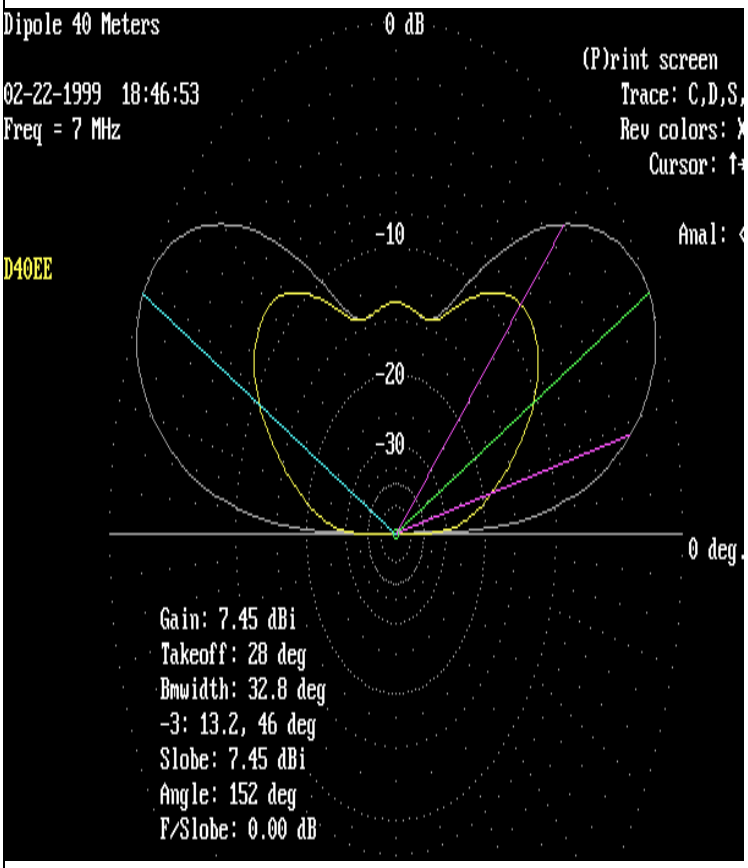
In my determination to make the SWOT check in, I knew that I must go higher and with more antenna… but how in a crowded trailer park? It starts with getting to know the park management. After a few weeks of transmitting on 2 meters and only one complaint, I received permission from the management to take down the unsightly push-ups for single tower. The wording from the management was the word… "OK". Little known, but to me the word "OK" also meant it was OK for a concrete footing!

Early one Saturday morning, I marked out a 4' x 4' x 4' hole behind the trailer and started digging. About 3' down, I looked up straight into the manager's face… "Nice day", I said. "I found this great top soil and will use it to plant grass around the trailer. I will fill the hole". Later that day, in came one yard of concrete in a rented ready mix buggy, without being seen! I backed it between RV's and began the pleasant task of using a 5 gallon bucket to move the concrete into the hole… OUCH, but it worked. I later set the hinged base plate 1' below grade, so I will be able to cover my tracks when I leave. The grass is now the greenest in the neighborhood!

Now, a few weeks later the tower is up and with additional M2 2M9 stacked beam from M2's spring opening, my signal is making the distance. To date, I am 3 for 3 on checking into W6OMF's Sunday night SWOT net, not to mention having an awesome signal for the San Fernando Valley and now WSWSS (Western States Weak Signal Society)!

Two other things on my "to do" list are to learn to communicate via satellites and get my General license. A third project someday, is to see if I too can bounce 2 meters off the moon from the trailer park!

73, Jim
KF6VBJ



This plot shows the elevation patterns at a height of 1/2 wavelength, or 70 feet. Outer trace is broadside. Inter trace is axial (off the ends). Now that's a classical dipole pattern!

The reference antenna length was chosen to resonate at the ½ wavelength height. As expected, the feed point impedance oscillates significantly as the height changes from our reference point. Thus we verify the old adage that you must trim the dipole to fit your particular QTH (height being very important).

For DX work, higher placement is warranted, since more power concentrated between 5 and 15 degrees is reported to be of major benefit. Heights around one wavelength are necessary to get the broadside lobe to launch in this range. However, higher may not always be better. Pay careful attention to the magnitude of secondary lobes in the broadside direction, as well as high angle radiation off the ends. Some heights would appear better than others due to concerns with nulling out local QRM. A complete discussion of of this aspect is beyond the scope of this article, but may be investigated at a later date.

For local work, lower heights appear to be more beneficial. Note especially how a omni-directional dipole becomes at lower heights. Below 0.4 wavelengths, there is less than 1 dB of attenuation in the end fire direction, which suggests a height between 0.4 and 0.3 might be an ideal compromise for local nets and rag chewing.

Feed point impedance and matching does not seem to be of major concern except at very low heights. The effect of height on 2:1 SWR bandwidth was not investigated.

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6 VVRC net 7:00 pm 145.470	7 VVRC MEETING 7:30	8	9	10
11	12	13 VVRC net 7:00 pm 145.470	14	15	16	17
18	19	20 VVRC net 7:00 pm 145.470	21	22	23	24
25	26	27 VVRC net 7:00 pm 145.470	28	29	30	31

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Club repeater in Vacaville:WD6BUS 145.470 MHz(-) pl 127.3
Additional local repeaters
WV6F 224.200(-) WV6F 440.025(+) WV6F 1291.900(-)

SUMMARY OF THE FINANCIAL REPORT
AS OF April 9, 2003

GENERAL FUND	$	1222.95
REPEATER FUND	$	442.75
PRIZE FUND	$	72.50
TOTAL	$	1738.20

THE VVRC WELCOMES YOU

The Repeater is Published by the Vaca Valley Radio Club 419 Mason Street, Suite 126 Drawer 521 Vacaville CA 95688 An ARRL Affiliated Club. Founded 1987, Chartered 1988 General Meetings: 2nd Wednesday of each month at 7:30 PM 420 Vine Street Fire Station.

Wheelchair accessible

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TV at its best from Vacaville….

Station	CH		Location	Heading
KMAX-DT	21	UPN	Sacramento	98°
KOVR-DT	25	CBS	Stockton	102°
KCRA-DT	35	NBC	Sacramento	101°
KQCA-DT	46	WB	Stockton	97°
KSPX-DT	48	PAX	Sacramento	99°
KVIE-DT	53	PBS	Sacramento	98°
KTXL-DT	55	FOX	Sacramento	98°
KXTV-DT	61	ABC	Sacramento	102°
KFTL-DT	62	SAH	Stockton	162°
KCRA	3	NBC	Sacramento	98°
KVIE	6	PBS	Sacramento	98°
KXTV	10	ABC	Sacramento	102°
KOVR	13	CBS	Stockton	102°
KMAX	31	UPN	Sacramento	98°
KTXL	40	FOX	Sacramento	98°
KTNC	42	AZA	Concord	160°
KQCA	58	WB	Stockton	102°
KFTL	64	SAH	Stockton	160°
KUVS	19	UNI	Modesto	92°
KSPX	29	PAX	Sacramento	61°
KTVU	2	FOX	Oakland	195°
KRON	4	IND	San Francisco	195°
KPIX	5	CBS	San Francisco CA	195°

PLEASE RENEW YOUR MEMBERSHIP

VACA VALLEY RADIO CLUB, Inc.
2003 MEMBERSHIP APPLICATION/RENEWAL FORM

Please print & fill in completely Make checks payable to Vaca Valley Radio Club Dues are delinquent January 1st

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Name: _____ Call Sign_____
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Repeater/Autopatch donation--- _____
Call/Name badge ------- $ 6.00 _____

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